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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/591,972	09/08/2006	Koichiro Iida	295253US0PCT	4965
22850 7590 03/11/2010 OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER NGUYEN, VU ANH				
ART UNIT 1796		PAPER NUMBER		
NOTIFICATION DATE 03/11/2010		DELIVERY MODE ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/591,972

Applicant(s)

IIDA ET AL.

Examiner

Vu Nguyen

Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 February 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) 1-19 and 32-35 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 20-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/06)
Paper No(s)/Mail Date 09/08/2006, 05/11/2009, 01/28/2010.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Informal Patent Application.
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Group III (Claims 20-31) in the reply filed on 02/16/2010 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Specification

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

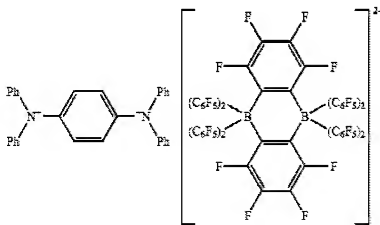
3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

4. Claims 20-23 are rejected under 35 U.S.C. 102(a) as being anticipated by Uetani et al. (WO 2004/099340). *Notes: US 2007/0020479 is being relied upon as an English equivalent of the WIPO document.*

5. Corresponding to the limitations set forth in these claims, Uetani et al. (Uetani, hereafter) discloses a polymer light-emitting device comprising a substrate, an anode, organic layers that include at least one light-emitting layer, and a cathode [0223, 0239, 0241, 0393], wherein one of the light-emitting layers is a film cast from a composition containing a light-emitting polymer, an ion pair, and a solvent [0214]. There are two scenarios where the claimed ionic compound is anticipated by the prior art: (1) when the claimed cation radical is equated to the light-emitting polymer and (2) when said radical is equated to the cation of the prior art ion pair. For the instant rejection, the second scenario is discussed whereas the first scenario will be employed in the rejection of claims 24-31 below. Accordingly, the prior art ion pair includes such species as N,N,N',N'-tetraphenyl-4,4'-biphenylene diaminium bis(tetrakis(pentafluorophenyl)borate) [0150] and the following (p. 36):



Uetani discloses numerous combinations of cations, which include anthrylium [0116], and anions, which include tetrakis(pentafluorophenyl)borate [0099]. It is noted that tetraphenyldiaminobiphenyl, tetraphenyldiaminobenzene and anthracene are all well-known charge-transporting materials.

Claim Rejections - 35 USC § 102/103

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

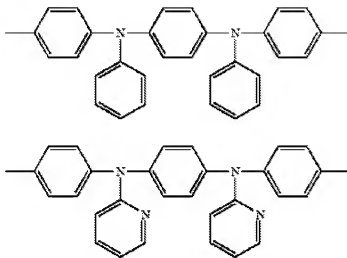
7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 24-31 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Uetani et al. (WO 2004/099340).

Notes: US 2007/0020479 is being relied upon as an English equivalent of the WIPO document.

9. Regarding the limitations set forth in these claims, Uetani teaches a polymer LE device as discussed above. As mentioned, the prior art device, in one embodiment, includes a second light-emitting layer in addition to the light-emitting layer containing the polymer and the ion pair [0241]. Further, the light-emitting polymer includes polymers of arylamines such as the followings (p. 54):



The polymer has a number-average molecular weight of 10,000-1,000,000 [0209]. Examples of polymers having M_n of 99,000 (M_w 200,000) [0296] and M_n of 30,000 (M_w 180,000) [0314] are disclosed. In the fabrication of the device, heat treatment is performed just after the formation of the light-emitting film containing the polymer and the ion pair and the heat treatment is done at a temperature of 50-300°C for up to 24 hours (usually at 90°C for 1 hour under reduced pressure. See examples) such that an onium salt is decomposed [0272-0276]. From the prior art teachings, the followings are either inherent or obvious. First, since the polymer-containing light-emitting layer contains a polymer with a charge-transport property and since a second (and different) light-emitting layer is employed, the polymer-containing light-emitting layer functions not only as a light-emitting layer but also as a charge-transporting layer. Second, although Uetani is silent as to what happens to the polymer in the light-emitting layer after the heat treatment, there is a reasonable basis to believe that, under the heat-treatment effect, the polymer is oxidized; that is, an electron is abstracted from the triarylamine

moiety, turning the amino center into an aminium cation radical whose counter anion is the anion of the now-decomposed ion pair. (It is noted that, in the instant application, the ionic compound is obtained in the same heat-treatment fashion as in the prior art. See example 1 of the specification). The resulting ionic compound most likely includes the species recited in claim 24. The examiner has provided rationales for showing that (1) the prior art polymer-containing light-emitting layer inherently or obviously functions as a charge-transporting layer and (2) the triarylamine-based polymer is inherently or obviously oxidized to form an aminium cation radical whose counter anion is the anion of the decomposed ion pair due to the heat treatment. Since the PTO does not have proper means to conduct experiments, the burden of proof is now shifted to the applicants to show otherwise. See MPEP § 2112 (I-V).

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vu Nguyen whose telephone number is (571)270-5454. The examiner can normally be reached on M-F 7:30-5:00 (Alternating Friday Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on 571-272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Vu Nguyen
Examiner
Art Unit 1796

/David Wu/
Supervisory Patent Examiner, Art Unit 1796